

DISEASES
OF THE
NOSE AND THROAT

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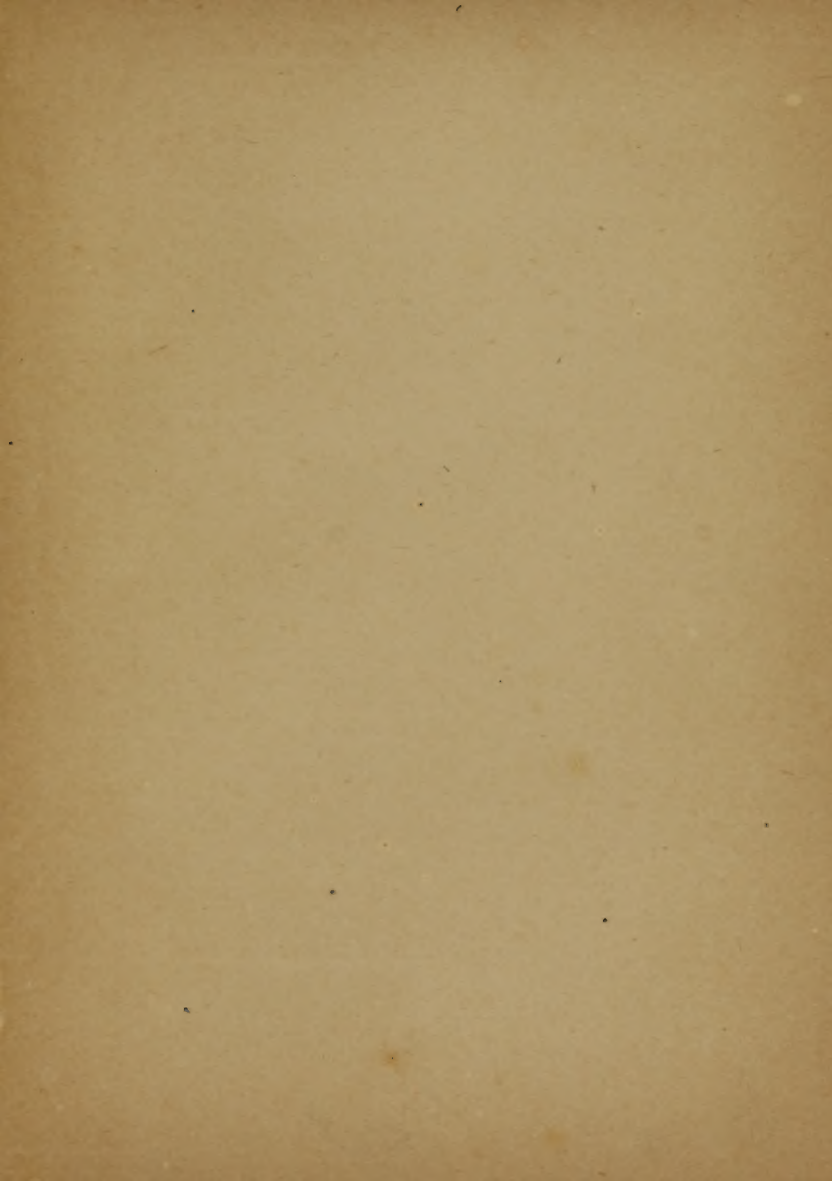
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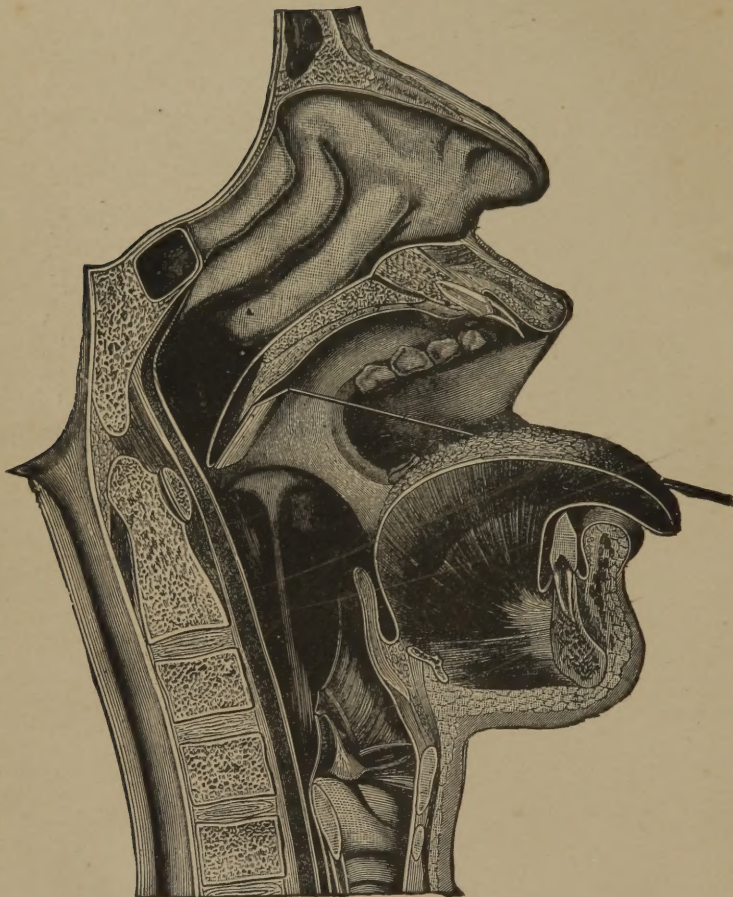
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Medium Cut of the Upper Air-Tract. [Fauvel.]

STUDENTS' MANUAL
OF
DISEASES OF THE NOSE
AND THROAT

A DIGEST, DESCRIPTIVE OF THE MORE COMMONLY SEEN
DISEASES OF THE UPPER AIR-TRACT, WITH
THE METHODS OF THEIR TREATMENT

BY

J. M. W. KITCHEN, M.D.

Assistant Surgeon to the Metropolitan Throat Hospital; Late Instructor in
Diseases of the Nose and Throat at the New York Post-Graduate
Medical School, etc.

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INTRODUCTORY.

THE medical student soon becomes sorrowfully aware that there is no royal road to medical knowledge. Yet there are some paths that are less difficult than others. In his undergraduate, as well as in his post-graduate days, the writer has often deplored the fact that so many authors find it proper to clothe, and perhaps even hide, a few ideas in a great flow of words. In this day, when so much study is required of even the average graduate, that very hard-worked individual has very little time to sift out the important points from the mass of words and discussion, even if he were able to differentiate the one from the other, and hence results much mental confusion ; and it would seem that there should be room for many digested and easily absorbable books relating to all branches of medical science.

This little work, written with the primary intention of confirming and condensing his own

knowledge of Throat Diseases, the writer has thought, with some additions and change in its make-up, might be of service to the over-worked student, and even be of value as a handy book for quick reference to the general practitioner. He has tried to incorporate in it nothing less than should be known of Throat and Nasal Disease by every graduate in medicine; and on the other hand, for the reasons of simplicity and ease of absorption, has omitted the very rare diseases of the Upper Air-Tract, and refrained from discussing much matter that the *expert* must of necessity wade through in order to gain a comprehensive grasp of the subject.

J. M. W. KITCHEN, M.D.

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ANATOMICAL AND PHYSIOLOGICAL RESUME.

TO introduce a complete description of the regional anatomy of the upper air-tract in a brief work of this kind would interfere with its scope in the way of brevity.

The student is directed for thorough refreshment of his memory as to the anatomy of these parts, to Gray and Quain, in whose works the articles on the NOSE, NASAL FOSSÆ, TONGUE, MOUTH, PHARYNX, and LARYNX, with accompanying figures, treat the subject very satisfactorily, on the whole, perhaps more comprehensively than in any other works in the English language.

For convenience it will be well to give here a slight résumé of the anatomy and physiology of the parts.

The upper air-tract is composed of the nasal fossæ, the pharynx, and the larynx. The prominent function of these air-passages is to conduct

fresh air to the lungs, and to return the vitiated expired air to the outer world.

But these organs also fulfil other functions. The nasal cavities are not only air-passages, but they detain on their sinuous surfaces a great deal of dust and other atmospheric impurities that would be apt to injure the delicate tissues lining the air-tract farther along. They also moisten the passing air, and elevate its temperature about two degrees F.

In these cavities are located the end filaments of the organ of smell, and they take part in the formation and modulation of speech and song. Let us see how the anatomy of the nose is adapted to these requirements.

The NASAL FOSSÆ are two irregular triangular cavities opening to the outer air by the two anterior nares, and into the vault of the pharynx by the two ovoid posterior nares.

The walls of these cavities are composed of bone at the back parts, but in front of the plane of the face are mostly of elastic cartilage, a provision against the accidents and inconvenience that would arise from the presence of a rigidity in so prominent a portion of the body, and so

much called into use in blowing the nose, etc. This elastic property allows the dilating movement occurring during inspiration. The two cavities are separated by the septum narium, which is seldom entirely straight, and when greatly deviated becomes a cause of disease.

The septum is a favorite seat for the growth of polypi and other tumors.

The outer surfaces of the bony walls are much expanded in their extent by the projection into the cavities of the turbinated bones. These fill all the space in the nasal cavities not needed for the passage of air, and their covering of mucous membrane is the seat of the filaments of the olfactory nerve. Odoriferous particles are deposited on the surface of the Schneiderian membrane as air is inspired, and there produce the peculiar effect on the nerve filaments known as smell. Attention may be called to the extreme vascularity of the mucous membrane covering the turbinated bones; this tissue even having been called erectile tissue by some writers. The student will remember the communicating passages connecting these nasal fossæ with the frontal, ethmoid, and sphenoid

sinuses, and with the two antrums of Highmore, and also the nasal ducts ; and the possibilities of inflammation travelling along these tracts, or the passages themselves becoming occluded. The floors of the nasal cavities are natural gutters, and of course require that they should not be impeded by growths etc., from carrying out their functions.

The PHARYNX in anatomy is the whole air-tract from the base of the brain to the top of the œsophagus, but in physiology the vault of the pharynx is quite distinct from the lower pharynx, or the part below the soft palate, when that movable veil or partition is raised during contraction. In the lower pharynx we get the function of a food-tract added to that of of an air-tract and resounding chamber. Here the food- and air-tracts cross each other, and of course only one of these functions is brought into play at one time. The mucous membrane is connected very loosely to the adjacent deep tissues to allow of the abundant motion necessary in the act of swallowing. Owing to this fact we here get great swelling, and experience painful deglutition during inflammation of the

part. The lower pharynx being swept by food and drink, the presence of secretion during inflammation, unless very tenacious, is not a prominently objective symptom. In the upper pharynx or vault, the condition is different. It being only an air-passage and resounding chamber, and a sort of corner or angle in the air-tract, impurities and secretions are apt to get lodged there. The vault is abundantly supplied with mucous follicles, the mucous membrane in this spot being often called the pharyngeal tonsil, and the retention of their secretion adds to the primary causes in keeping up any catarrhal condition present. It will be remembered that the orifices of the Eustachian tubes are in the vault of the pharynx.

The LARYNX has a complex function to fulfil. It is an air-passage. It is a sound producer or phonator. It is a valve that opens during inspiration, is relaxed in the expiratory act, and which shuts tightly during the act of swallowing, or when it is necessary to hold the lungs full of air. It is never completely at rest, and is most subject to wear and tear when emitting loud, high-pitched sound; which function requires

great muscular effort to make the vocal cords very tense, and requires a great degree of vibration to produce the loudness in sound. Whispering is articulated speech without phonation—hence, where rest for the larynx is imperative, the desirability of whispering instead of talking will be apparent. The movements of rotation of the arytenoid cartilages, of abduction and adduction of the cords, and of tight closure of the whole glottic aperture when needful, necessitates great laxity in the laryngeal mucous membrane and its slight connection with the underlying tissues; hence the opportunity for great swelling, and the prompt perception of the swelling encroaching upon the normally small passage for air in the larynx, by the patient experiencing dyspnœa during inflammatory and œdematous infiltration.

The student should acquaint himself with the average healthy appearance of the parts. He will find that perfection is not to be found, and slight deviations from the normal must not be taken for disease—thus a deviated septum nasi, slight post-nasal catarrh, and vocal cords that are not pearly white, will be found as a rule in most individuals.

ARMAMENTARIUM.

A CERTAIN number of instruments are *necessary* for the convenient and efficacious-examination and treatment of the diseases under discussion. There are legions of instruments

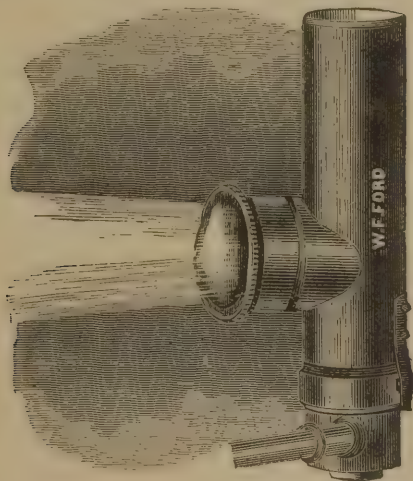


Fig. 1.

manufactured for the general and special surgical treatment of the diseases of the upper air-

tract, but the following named are those that will generally be found most satisfactory in use.

1ST. A good, steady artificial light. Where there is a gas supply, use the Argand burner ; where oil is used, the student lamp is satisfactory. The perfected electric light will probably be best.

2D. A Mackenzie light-condenser (Fig. 1), which is to be used as a hood for the light.

3D. A reflecting head mirror, with an elastic head band and universal joint, three and a half inches in diameter, pierced in the centre, and with a focal distance of from eight to fifteen inches, ac-

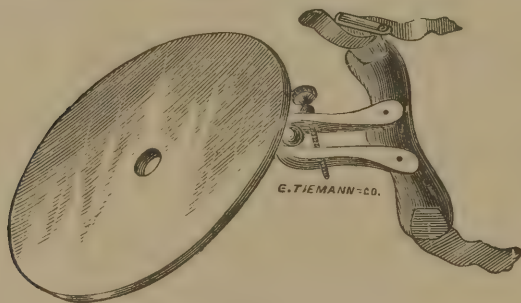


Fig. 2.

ording to the vision of the user. Pomeroy's (Fig. 2) is a good one. This is used to throw reflected light into the throat and nose.

4TH. From two to four throat mirrors (Fig. 3) for laryngoscopic and post-nasal examination. Number one is the smallest, and number four the largest size. One universal handle will do for all. Let the stems be *flexible* and the glass and mounting be *thin* and light.

5TH. A Tuerck's tongue spatula with two or three assorted blades (Fig. 4), which is used for direct examination of the pharynx and to depress the tongue.

6TH. Small linen napkins for grasping the tongue.

7TH. A medium size Fraenkel's nasal speculum for distending the anterior nares.

8TH. A bougie with stiff wire inserted for occasional use in drawing forward the epiglottis and soft palate. It may be used for passing a cord through the nose when plugging the posterior nares becomes necessary.



Fig. 3.

9TH. A Wagner's nasal probe for nasal exploration.

10TH. An aluminium flexible probe and cotton-holder (Fig. 5) is useful in laryngeal exploration, in making applications of fused nitrate of silver, and with cotton twisted on the end, for making other local applications.

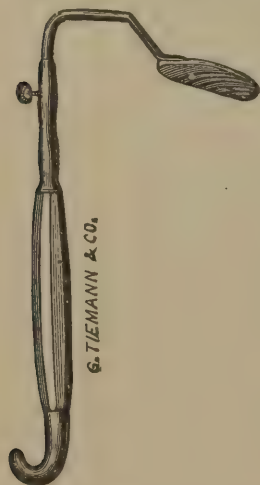


Fig. 4.

11TH. A few Tuerck's laryngeal brushes and Wagner's post-nasal brushes (Fig. 6) for making local applications to the larynx and pharynx. The hair should be very soft and no rough projections should be allowed on the mountings.

12TH. A condensed air receiver and pump with tubing (Fig. 7).

13TH. Spray tubes operated by compressed air for cleansing purposes, and for making applications of medicaments in spray. A Richardson hand atomizer (Fig. 8) may be used for this

purpose, but a number of separate spray tubes are more convenient. Cut-off attachments to the spray tubes are not necessary. The rubber tubing can be applied directly to the spray or insufflator tubes, and the air current can be controlled by bending the rubber tubing against the tube with the thumb.

14TH. A powder insufflator, with adjustable tips, operated by a hand air-bulb (Fig. 9), is especially valuable for treating children, and for general house to house practice.

15TH. A pharyngeal bistoury (Fig. 10) for opening tonsillar abscesses, and for scarification.

16TH. Mackenzie's tonsil-litome, two or three sizes (Fig. 11), for the removal of tonsils.

17TH. Long forceps (Fig. 12), and long curved scissors (Fig. 13), for amputation of the uvula.



Fig. 5

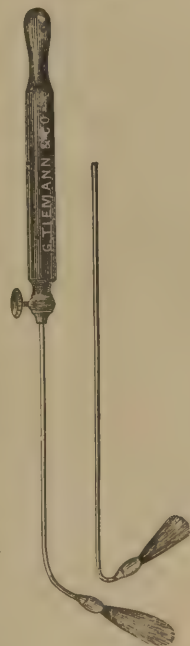


Fig. 6.

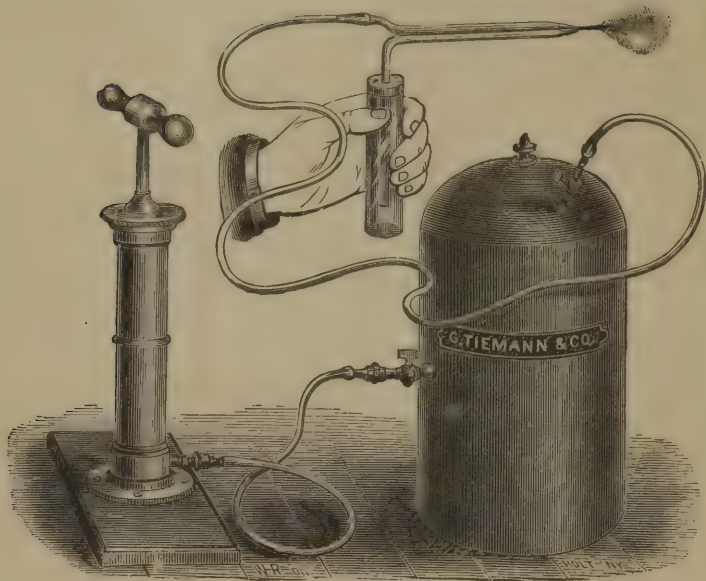


Fig. 7.

18TH. Stoerck's snare (Fig. 14) for the removal of gelatinous and other nasal polypi.

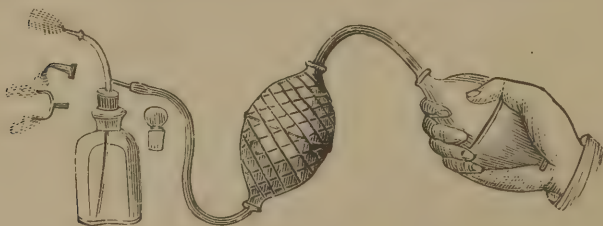


Fig. 8.



Fig. 9.



Fig. 10.

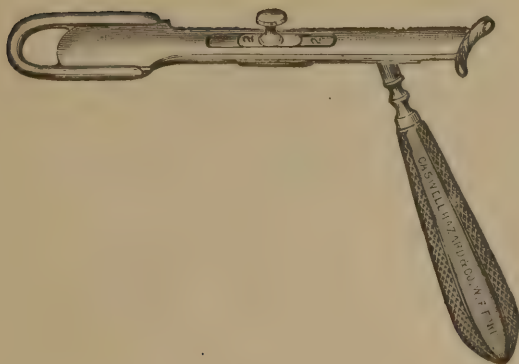


Fig. 11.



Fig. 12.

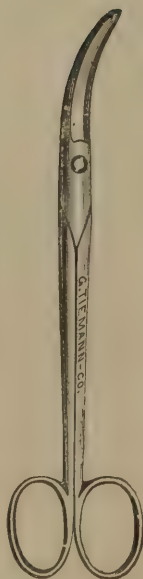


Fig. 13.



Fig. 14.

19TH. A large sized cuspadore—an ungraceful but absolutely necessary receptacle.

20TH. Two sizes of Durham's canula (Fig. 15) with retractor (Fig. 16) for use in suddenly-called-for tracheotomy.

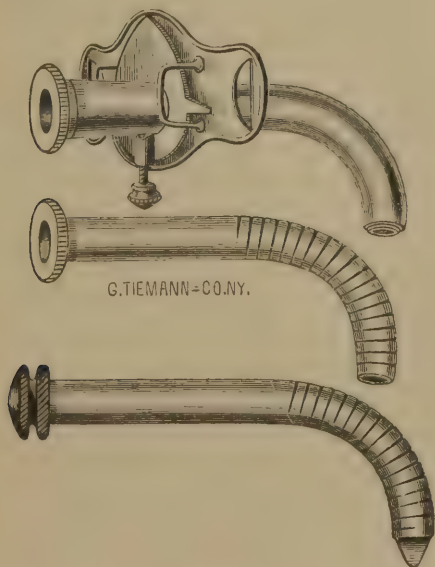


Fig. 15.

The practitioner is of course supposed to have the ordinary supply of general operating instruments used in this operation. These are

about all the special instruments that the general practitioner would need in treating ordinary throat and nasal diseases. The long



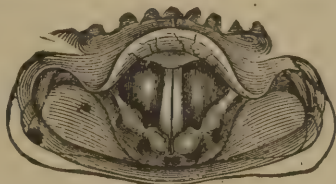
Fig. 16.

list of laryngeal and other forceps, curettes, galvanic-electric appliances, dental engine and drills, etc., etc., would only be used by the surgeon who has had a special practical training in throat work, and who must of necessity have a knowledge of the subject greater than can be treated in a work of this elementary character.

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ventricles, the vocal cords, and sometimes the tracheal rings even down to and including the bifurcation. By shifting the mirror somewhat, the extra-laryngeal parts at the base of the tongue, the back of the epiglottis, and the right and left pyriform sinuses can be examined.

The frontispiece gives a view of the laryngeal mirror in position. Fig. 19 represents the larynx during inspiration with



(Ziesssen).

the vocal cords abducted, and Fig. 18 represents the larynx during phonation with the vocal cords in adduction. The laryngeal image in the mirror shows the anterior commissure of the glottis, and the epiglottis, at the top of the mirror, while the posterior commissure and the arytenoids are at the bottom. The right side remains on the right in the mirror, and the left on the left. The principal difficulty to overcome in the examination of the interior of the larynx, next to the almost universal irritability of the fauces, is that of an overhanging epiglottis.

This can usually be surmounted by carrying

the mirror back of it and somewhat downward, or by having the patient phonate the sounds "ah," and "e," either long drawn out, or quickly and sharply repeated. This, by approxima-

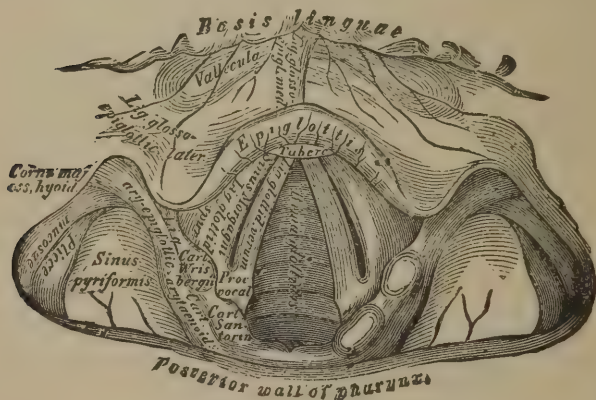


Fig. 19 (Ziemssen).

tion, brings the vocal cords into view, and permits their action to be seen. In some cases the moment of gagging, or of quick, deep inspiration, is the momentary and only chance gained for a view. In some cases manipulation of the patient's larynx from the exterior will lift it into view. An arching tongue may have to be held down, as well as out, to prevent the

arch from intercepting the view in the mirror. Excessive secretion in the larynx may obscure or entirely hide the interior, and treatment will have to be directed to this symptom before the examination can be made.

Enlarged tonsils, and low-hanging hard and soft palate and uvula, quite frequently interfere with throat examinations.

In making brush applications to the larynx, the patient holds his own tongue, and the operator, holding the mirror in position with his left hand, directs the brush into the larynx by means of observing in the mirror its entrance into that organ. When spray applications are made, the tube-points are carried just back of the epiglottis, and, as the patient phonates, the air pressure is let on, and the downward spray must of necessity bathe all the laryngeal mucous membrane.

Circumscribed local applications to the larynx require much self-control on the part of the patient. This precise work in the larynx is of a very delicate and difficult nature, and usually requires careful and skilful training on the part of the operator. Take, for instance, the use of

the laryngeal forceps, where, in most cases, the grappling for growths, after the first moment of entrance, is a matter rather of instinctive feel than of sight.

Insufflations are directed into the larynx in the same manner as the spray.

To make brush applications to the post-nasal space, the tongue being depressed with a spatula in the operator's left hand, the post-nasal brush is introduced through the mouth with the brush pendant, and is carried to the posterior wall of the pharynx, and then during relaxation of the soft palate, the brush is quickly turned and carried up into the vault of the pharynx, the upward movement being aided by the quick spasm of the palate muscles.

Spraying the post-nasal space can be accomplished with the upward spray tube held at the back of the pharynx, and turning on the compressed air quickly during the intervals of relaxation of the palate, but the object can usually be accomplished by spraying directly through the anterior nares. Some patients cannot relax the soft palate with the mouth open. In these cases, the tongue depressor being in place, the

spray tube can be carried to the back of the pharynx, and the lips closed around the tube and spatula shank ; then he of necessity relaxes the soft palate when he breathes, and the spray can be turned on with effect. The removal of adhering crusts of inspissated mucus, etc., can be effected with cotton wound upon the probe-point. Violent syringing and douching of the post-nasal space is not to be recommended, as the patient is apt to experience annoying after-sensations in the Eustachian tubes and middle ears, and it may cause inflammation in those parts.

Applications to the nasal fossæ are made with the forward blowing spray, insufflations, and the cotton-wound probe. Spraying the nasal cavities with a heavy pressure may set up a painful facial neuralgia ; eight to ten pounds pressure is usually sufficient for the nose.

Local applications of nitrate of silver are best made by fusing the drug upon the roughened point of a probe, which can then be carried and applied to the point desired without danger of damage from any of the caustic getting loose in any of the passages or cavities.

TONSILLOTOMY with the Mackenzie tonsillitome is a safe and simple operation where the patient is under moral control. Selecting the appropriate-sized blade that will slip over the gland, the patient's tongue is depressed by the two forefingers of the operator's one hand, while the other passes the fenestra over the enlarged gland, and, with the blade held parallel with the faucial pillars, the thumb drives the blade firmly and sharply through the gland, which is usually withdrawn clinging to the blade of the tonsillitome.

• In regard to the amount of the gland to remove, it may be said that, as a usual practice, the more removed the better.

If taken off at the edge of the faucial pillars, there will be some after-shrinkage and a good stump left. The operation in struggling children is a disagreeable one, and a more pleasant, improved method of operation in such patients is desirable.

Anæsthesia has to be practised in some of these unruly cases. There is usually a slight hemorrhage; sometimes it is abundant, and it is advisable to have at hand a liberal supply of

water filled with cracked ice, which, when taken in the mouth, quickly controls the flow of blood. In very rare cases the hemorrhage may be serious, and may require pressure or the actual cautery to control it; and it is well to keep in mind the fact of the vicinity of the carotid artery to the gland, and that the base of the gland is supplied with large-sized arterial twigs. Therefore, in opening tonsillar abscesses, cut toward the median line.

AMPUTATION OF THE UVULA.—After calculating the amount of tissue necessary for removal, and usually a small part will suffice, the tip of the uvula is seized with the long forceps and dragged forward. The curved scissors being introduced and the blades, passed on each side of the uvula, pointing well downward, and the uvula drawn well toward the cleft of the blades, the cut is quickly made and the instruments withdrawn, the forceps holding the severed tip. The hemorrhage is only a few drops.

In the REMOVAL OF NASAL POLYPOID and other soft tumors, the snare is introduced through the anterior naris, the wire looped over each growth, and traction being made, with a little

twisting the growth will come away, causing very little pain and slight hemorrhage. If the bleeding obscures the view during the sitting, plug the nostril for a few minutes before resuming the operation. The stump is afterward touched with the galvano-cautery or chromic acid. Occasionally these growths can best be removed through the post-nasal space.

HARD NASAL GROWTHS, hypertrophy of the turbinated bones, deviated septum, etc., are best removed by special burr drills revolved by the dental engine.

ARTIFICIAL OPENINGS INTO THE WINDPIPE.—Every general practitioner may be called upon suddenly to open the windpipe. There are two operations that are generally performed : laryngotomy and tracheotomy. The latter is to be preferred where the patient is old enough to have neck-room for the operation. Laryngotomy is more easily performed, and is generally done in children, whose short necks prevent the lower operation.

Unless the patient is already anæsthetic from asphyxia, ether may be given. In emergencies do not wait or be much troubled as to under-

lying tissues or hemorrhage. Cut through the skin, and with knife-handle and fingers scrape away the tissues; open the windpipe and put in the canula quickly. In case of hemorrhage turn the patient downward, and let the blood run away. A little blood in the windpipe is not a very serious matter. It is usually easily coughed up by the patient, even when unconscious. Of course, if time is not too pressing, the tissues will be more carefully opened, and hemorrhage stopped before the windpipe is opened.

In LARYNGOTOMY, the opening is made into the crico-thyroid membrane, and, if needful, the incision can be extended through the cricoid cartilage.

It is better that care be taken not to cut the isthmus of the thyroid gland, which covers the second and third tracheal rings; and a small artery crosses the crico-thyroid membrane, that may need tying or twisting. The notch felt over the membrane is the guide to the situation, and the incision is made in the median line one and a half inches long. Trousseau's dilator is mostly used to dilate the wound in

introducing the canula, which must previously be furnished with tapes to tie around the neck.

IN TRACHEOTOMY, the incision is made in the median line, below the isthmus of the thyroid gland, and may be two or three inches long, according to the depth of the fat and other tissues over the trachea. It is best to separate the muscles and push aside the veins and connective tissues with the knife-handle and fingers, and when the trachea is reached, it may be transfixed with the tenaculum before inserting the knife-point, which should be done from below, cutting upward and forward, dividing three or more tracheal rings. The wound needs watchful after-care in the way of strapping together the edges, and the inner canula should be withdrawn and cleansed when obstructed with mucus, etc.

THYROTOMY is a rather rare operation, and is practised for the removal of growths and foreign bodies from the larynx, and should only be undertaken when attempts at removal by the natural passages have failed. The thyroid cartilage is opened in the median line after preliminary tracheotomy. Impairment of the voice is apt to follow.

COMMON LOCAL DISORDERS OF THE NASAL FOSSÆ.

ACUTE CATARRHAL RHINITIS.

Synonyms.—Coryza, Nasal Catarrh, Cold in the Head, Snuffles, etc.

Lesions.—Engorgement of the blood-vessels with œdematous swelling, followed by a discharge of a thin watery secretion (liquor sanguinis), which latter becomes tenacious from mucus, and is finally charged with epithelial and white blood cells. Excoriations of the lips are apt to be present after several days of this discharge.

Symptoms.—Commencing with more or less general depression and malaise, there is progressive stuffiness and fulness in the nasal cavities, with frontal headache. Breathing through the nose is more or less interfered with. Slight fever is a concomitant symptom. Soon a watery discharge occurs that gradually becomes mucopurulent, and toward the close becomes thicker, leaving scabs and crusts in the nasal cavities.

Duration.—From three to ten days.

Complications.—Frequently the inflammation extends along the pharynx, larynx, trachea, and bronchi, and also the nasal ducts. Less frequently are the Eustachian tubes, antrums of Highmore, sphenoid, ethmoid, and frontal sinuses implicated.

Prognosis.—For recovery, good. From the inability of infants to suck during an attack, their nutrition may be interfered with.

Sequelæ.—There may be recurring attacks, chronic catarrh, turbinated hypertrophy, and nasal growths.

Etiology.—Over-reaction from periods of depression and chill. Reflex action caused by wind or draught. Sudden changes of temperature. Direct effect of great heat or cold. Irritation from foul air, dust, smoke, vapor, and gases. Cachectic, delicate, and poorly nourished conditions predispose.

Treatment.—In prevention—correction of constitutional and predisposing conditions. Pure cool air in and out of the dwelling. Proper nourishment. Cold sponge baths. Enough, and equally diffused, clothing. Avoidance of over-heating any part of the body. Avoidance

of the various direct and indirect causes. To abort—in case of chill, a large dose of alcohol ; in case of local irritation, mild sedative spray, and a mild sedative internally. Curative treatment—few persons think it worth while to treat an ordinary cold in the head, but it can be restricted to one third of its natural course by having the patient remain quietly in an even, moderate temperature, keeping the feet warm, bowels freely in action, and applying frequent mild astringent and sedative sprays to the nasal fossæ, and cold applications to the outside of the nose. Infants and children can be more conveniently treated by the insufflation of powders, and by applications of camphorated oil to the exterior of the nose and frontal bone. Infants may require feeding with a spoon.

CHRONIC CATARRHAL RHINITIS.

Synonyms.—Chronic Coryza, Hypertrophic Nasal Catarrh.

Lesions.—In recent cases, nyperæmia of the nasal mucous membrane, with constant presence of an abnormal amount of muco-purulent secretion, varying in its fluidity. It may be watery,

or, on the other hand, quite tenacious. In long-continued cases there will be more or less hypertrophy of the nasal mucous membrane in all its elements (fibrous, epithelial, glandular and vascular), and also of the sub-mucous tissue. In rare cases the bone itself becomes hypertrophied. The tissues over the convexities of the lower turbinated bones are most affected. There is apt to be ulceration at the points where the enlarged tissues are brought into apposition. The end filaments of the olfactory nerve may be interfered with from pressure.

Symptoms.—Discharge of the morbid secretion, requiring continued blowing of the nose and hawking inspiratory efforts to clear the fossæ. Drying crusts induce picking with the fingers, causing frequent bleeding. There is always more or less occlusion of the meati, necessitating breathing through the mouth, which, in its turn, occasions further throat trouble, and, if long continued, produces the characteristic protruding teeth and silly appearance of the habitual mouth-breather. The voice is changed in proportion to the occlusion, and if the discharge is not thin and profuse enough

to act as a flux, the secretions are apt to collect under desiccated crusts, and undergoing decomposition, give an offensive odor to the breath, and cause erosions of the epithelial surfaces. The special sense of smell may be dulled.

Duration.—The disease may have only a short course and terminate spontaneously under influence of favorable surrounding conditions, or it may continue indefinitely.

Complications.—Catarrh of the vault of the pharynx (post-nasal catarrh) is an almost universal accompaniment. Catarrh of the frontal and ethmoid sinuses, and of the antrums of Highmore, may be a disagreeable complication; the copious secretion, being retained and undergoing decomposition, making the breath very offensive.

Excoriations of the skin about the anterior nares, catarrh of the Eustachian tubes, interference with the hearing, and enlarged tonsils, are frequently seen in these patients.

Prognosis.—Except in infants, where their nutrition is seriously interfered with, the prognosis as to life is good, but, without appropriate treatment, the comfort and general health may be seriously interfered with.

Sequelæ.—Nasal stenosis, mouth-breathing, and ozæna (rhinitis atrophica) are probable sequels.

Diagnosis.—The disease should be differentiated from syphilis, and those catarrhs caused by nasal growths and foreign bodies. In some cases it is difficult to say why the disease should not be classified with rhinitis atrophica.

Etiology.—Repeated attacks of acute nasal catarrh are apt to lead into this chronic state. Also long-continued direct irritations, as from dust, impure air, and excessive temperature extremes. Poor general nutritive and diathetic conditions, and congenital and traumatic nasal malformations, predispose.

Treatment.—Correction of errors in the general nutrition. Removal of direct cause, and surrounding the patient with good hygienic influences. Locally, the nasal tract must be kept clean. Mild and unirritating alkaline sprays will do this best. Occasionally crusts will have to be removed with the cotton probe or forceps. The various non-irritating astringents may be applied either in spray or in powder, graduating the strength of the application according

to the tolerance of the patient. Where much hypertrophied tissue has formed and interferes with proper breathing, the redundant tissue must be destroyed. This may be done in various ways. Perhaps the best is by means of the galvano-cautery. If the patient objects to this, acetic acid may be used, applied with a probe on a pledget of cotton, one side of which is covered with vaseline to protect the opposite tissues. Stimulative applications will often answer, but are tedious.

The writer has seen the hot-water douche, intelligently applied, reduce large hypertrophies.

RHINITIS ATROPHICA.

Synonyms.—Ozæna, Chronic Coryza, Fetid Catarrh.

Lesions.—The distinctive lesions of this disease are, the atrophy of more or less of the glands of the nasal mucous membrane, and the formation of dry, white, adherent, scaly incrustations, composed of inspissated, vitiated secretions and epithelial cells. Under these scales superficial ulceration may occur. In long-standing cases there is general contraction of the fibrous ele-

ments of the mucous membrane, absence of blood-vessels, and the destruction of the ends of the nerve filaments distributed in the Schneide-rian membrane. The nasal cavities may thus be more roomy than is normal.

Symptoms.—Disagreeable dryness, burning and tingling in the nasal fossæ, with offensively fetid breath, caused by decomposition of the retained crusts and secretions, and perhaps individually peculiar fetid secretion of the nasal mucous membrane. There is not enough normal secretion to moisten the membrane, or to act as a flux. General systemic depression may result from the continuous absorption of the offensive nasal emanations.

Duration.—This affection without treatment becomes progressive, and will endure indefinitely.

Complications.—Catarrh of the contiguous sinuses is frequently present.

Prognosis.—If treatment can be made early in the course of the disease, a cure is possible, but a well developed case cannot be cured. Improvement is possible in all cases, and the attainment of a condition possible, where ordi-

nary care as to cleanliness on the patient's part will allow of a comfortable and inoffensive life.

Diagnosis.—Syphilitic ozæna may simulate this affection, but there is a greater discharge and deep and rapid ulceration in syphilis, that will, with the history, that should always be inquired into if there is doubt, prevent a wrong diagnosis. There is no distinct border-line between hypertrophic nasal catarrh and this disease, the one running into the other.

Etiology.—Hypertrophy of the fibrous connective tissue and its subsequent contraction may destroy the glands, vessels, and nerves, and bring about this condition. There may also be some other as yet undetermined cause.

Treatment.—The most successful treatment is preventative in curing chronic hypertrophic catarrh. When the condition has become established, the key-note from first to last is continuous cleanliness, and stimulating the remaining glands to perform their normal function. This stimulation must be without concomitant astringent action. Sanguinaria is a good stimulant for local application. For cleansing and disinfection, Dobell's solution is first-rate.

The patient should make the cleansing of his nasal cavities a regular toilet duty, a hand spray being convenient for making the cleansing application.

Emollient applications prevent the dry scales from forming.

DEVIATION OF THE NASAL SEPTUM.

A perfectly straight nasal septum is almost unknown. In the great majority of individuals the partition makes a bend in its course, presenting a convexity on one side and a corresponding concavity on the other. The deviation is usually to the left, and in some cases is so considerable as to more or less occlude one nasal passage, giving discomfort to the patient, causing nasal catarrh, and leading to mouth-breathing with its attendant circle of throat troubles. Such extreme cases are benefited by an operation. A stellate knife-punch, made upon the principle of a leather punch, may be used. One of the blades is carried in on one side of the septum and the other blade on the other side. The handles are locked and then brought together, cutting through the convex-

ity. If necessary, the knives can be arranged to punch out some of the tissue. Plugs are introduced into the nasal fossæ to crowd back into place the septum, and are maintained *in situ* until healing has taken place. An air-passage may also be bored out with the dental engine.

EPISTAXIS.

Synonym.—Nosebleed.

Lesion.—Probably in all cases there is rupture of small blood-vessels, and usually in the anterior part of the nose.

Symptoms.—A hemorrhage from the nasal cavities, usually from one side and from the anterior nares. In some cases, as in fevers, the blood may come from both sides, and sometimes may escape from the posterior nares only. In case of frequent or excessive loss of blood, there may be anæmia and interference with the general nutrition. Fainting may occur, and also suffocation from the blood getting into the larynx.

Duration.—Epistaxis may endure in rare cases for days.

Prognosis.—Is usually favorable. Death has occurred from nosebleed.

Diagnosis.—Idiopathic nosebleed from the posterior nares may simulate hemorrhage from the stomach, lungs, and mouth. It must be differentiated from the bleeding of vascular-nasal, and postnasal growths.

Etiology.—Tenderness of nasal tissue. Hemorrhagic diathesis. Continued and eruptive fevers. Cerebral hyperæmia. Plethora. Excessive blood-pressure, due to heart or kidney affections, or of neighboring growths. Traumatism, serious in nature, or slight, as from picking the nose. The hemorrhage may also be vicarious, as, for example, substituting the menstrual flow.

Treatment.—Attention to the general condition of the patient's health is often demanded. Usually the bleeding stops spontaneously. Quiet maintenance of the sitting posture, cold applications to the exterior of the nose, or to the nape of the neck, ligating a limb to keep a certain amount of blood out of the general circulation, and avoidance of blowing and sniffing the nose, are some of the readily adoptable

measures for stopping the flow. Ergot internally is useful. If excessive, the nasal fossæ will have to be tamponed. This may be often done with effect anteriorly, using cotton pledgets to which are tied strings for removal, or better, a cotton lamp-wick is gradually pressed in and pressure made. In some cases the posterior naris will have to be plugged,—a string being passed through the inferior meatus with a bougie or catheter, and caught with forceps, and tied to a graduated plug of lint, which is then drawn up behind the velum palati and into the posterior naris, and the work completed by anterior plugging. The tampon material should be carefully removed in twenty-four hours to prevent decomposition.

MORBID GROWTHS IN THE NASAL CAVITIES.

After hypertrophy of the mucous membrane referred to under the head of chronic catarrhal rhinitis, the most frequent growth in the nasal cavities is the GELATINOUS POLYPUS (*myxoma*). These tumors contain a slight frame-work of fibrous and glandular tissue, and a large amount of mucoid tissue. They are soft and slightly

elastic, and as they grow their own weight draws them out into sac-like masses with contracted pedicles. They are generally situated on the posterior parts of the middle turbinated bones, and are multiple in number. They may grow so as not only to fill the nasal fossæ, but also to protrude through the anterior and posterior nares.

Symptoms.—There is more or less occlusion of the nasal cavities, especially in damp weather, owing to the absorption of moisture by the growths. There is a watery catarrhal discharge. Forced breathing may move the growths back and forth in the nose.

Prognosis.—If properly removed, it is doubtful if these growths will return, but, as there are generally a number of young growths started, their subsequent development gives an appearance of recurrence of the older polypi.

Diagnosis.—Cerebral hernia has been mistaken for gelatinous polypus. Sometimes they are difficult to distinguish from the hypertrophied mucous membrane. Their consistency and their grayish, glistening appearance will usually give no trouble in diagnosis.

Etiology.—Probably chronic nasal catarrh is most often the inciting cause. However, these growths do occur without such previous condition.

Treatment.—Careful eradication with the wire snare, cauterizing the stumps, and local treatment for any catarrhal or other irritating cause will finally effect a cure.

FIBROID GROWTHS are not extraordinarily rare occurrences in the nasal cavities, but they are not common, and their treatment rather pertains to general major surgery, as they are generally fusiform and invade neighboring structures. They spring from the periosteum, and are usually attached very firmly to the basilar process of the occipital bone.

They grow slowly but surely, and every tissue gives way before their progress. Sometimes they are of a favorable formation for operation with the snare *écraseur* and galvano-cautery.

FOREIGN BODIES IN THE NASAL CAVITIES.

This condition is not infrequent in children, who, inserting a button, bean, or other object in the nasal cavities, may be too young to know

what they are doing, or may be afraid to mention the occurrence of the accident, and the object, being pushed out of sight, may be forgotten, and give rise to a continued irritation. Of course, in treatment, thorough cleansing will be apt to disclose the true cause of the persistent discharge, but the object may become incrustated with the earthy salts, and be hidden from view by inflamed tissue closing it in.

It is well to always bear in mind the possibility of this condition, especially in children. The extraction may be made with forceps or hooks, and care should be taken to injure the contiguous tissues as little as possible.

HAY FEVER.

Synonyms.—Summer Catarrh, Hay Asthma, Rose Cold, etc.

Varieties.—Catarrhal and asthmatic.

Lesions.—A discharge of a thin, watery secretion from more or less of the whole air-tract, with the nasal passages as the starting-point and centre of the irritative action. The lachrymal ducts are always affected, and sometimes the Eustachian tubes. There is great conges-

tion of the mucous membrane, and the nasal cavities may be quite closed from the swelling of the inflamed lining membrane. The secretion may get more muco-purulent in character, and lachrymation is abundant.

Symptoms.—Commencing with an irritative tickling in the nose, there is a seemingly never-ending succession of sneezing, weeping, and nose-wiping. In those cases where the bronchi are implicated, there will be cough and most likely asthmatic seizures, sometimes of great severity. There may be constitutional disturbances, but these are not characteristic manifestations. The course of the disease may be uninterrupted for several months, or it may be of only a few days' duration, or there may be remittent attacks. The attack may come on at any time during the warm season. Usually each patient has a regular date for its appearance every year. The patient always recovers, and the cessation of the affection is apt to be very sudden, and then there is relief for the sufferer until another year rolls round.

Diagnosis.—This affection should be differentiated from the ordinary local catarrhs of the

air-tract, and also those produced by inhalation of ipecacuanha and other substances that sometimes have peculiar effects upon certain individuals.

Etiology.—Predisposing causes seem to be the heat of summer, and hyperexcitability of the nervous system. It is a disease of the more highly civilized peoples, and of those who are engaged in the more intellectual pursuits. The exciting cause is believed to be the mechanical, and perhaps chemical, irritative effect of plant pollen deposited on the affected mucous membrane,—especially of grass pollen.

Treatment.—Removal from the vicinity of the cause is the only cure. Local treatment has so far proved only alleviative, but regular applications of sedatives, astringents, emollients, etc., will give much comfort and relief to the sufferer from this curious disorder.

COMMON LOCAL DISORDERS OF THE PHARYNX.

ACUTE CATARRHAL PHARYNGITIS.

Synonyms.—Common Sore Throat. Acute Catarrh of the Retro-Nasal and Lower Pharynx.

Lesions.—The parts most generally affected are the posterior and lateral walls of the lower pharynx. Quite frequently the faucial pillars, tonsils, soft palate, and uvula are implicated, and infrequently the vault of the pharynx. There is hyperæmia and swelling of the mucous membrane from serous infiltration. At first the mucous membrane is abnormally dry; later there is more or less abundant secretion of viscid mucus, turbid with epithelial and white blood cells. Neighboring glands may be swollen.

Symptoms.—Usually, but not always, there will be constitutional disturbances, loss of appetite, malaise, headache, slight chilliness and fever. There may be local pain, huskiness, dryness, and difficulty in swallowing, owing to infiltrated pharyngeal muscles and to increase in bulk of the mucous membrane. Later there will be hawking and pharyngeal cough, with expectoration of the catarrhal secretion.

Complications.—The inflammatory action is apt to run along the contiguous mucous membrane, setting up rhinitis, laryngitis, and bronchitis. Catarrh of the œsophagus may be present.

Duration.—Three or four days ; less in mild, and longer in severe, attacks.

Prognosis.—Complete resolution is the rule. The attack may, under neglect and further irritation, go on to the chronic state.

Repeated attacks leave the parts in a weakened condition.

Diagnosis.—This affection is to be differentiated from the catarrhs caused by the poisons of syphilis, fevers, etc. In tonsillitis the centre of the trouble is in the swollen tonsils, the most of the secretion being produced from those glands.

Etiology.—Reflex and local effects of temperature extremes. The irritation of dust, and other impurities. It may be due to convection from contiguous inflamed mucous membrane, especially of the nose, larynx, and stomach.

Treatment.—Rest in an equable temperature. Let the feet be kept warm, the bowels open,

and the diet unstimulating and moderate in quantity. Ice melted in the mouth, and cold, mildly astringent, and sedative gargles are useful. Let the patient take a mouthful of the fluid, and assume the dorsal position, letting the fluid run back into the pharynx. Gargling in the ordinary way is irritating to the throat. Children may have the fluid applied to the parts with a syringe.

CHRONIC CATARRHAL PHARYNGITIS.

Synonym.—Chronic Sore Throat.

Lesions.—This affection has for its principal seat the lower pharynx, extending more or less to the faucial pillars, tonsils, soft palate, and uvula.

There is a sluggish continuous hyperæmia of the deep-seated vessels, and occasional large veins are seen running over the surface of the pharyngeal mucous membrane. There is hypertrophy of all the elements of the mucous membrane, causing general thickening, but this thickening is usually unequally distributed, presenting an uneven surface.

The tonsils may be raised from their base,

and the uvula enlarged and extended downward.

The color is mottled dark red or purplish. There is increased secretion of thick, tenacious mucus.

Symptoms.—Local pain. Harshness. Difficulty in swallowing, owing to interference with the neighboring muscles. Sense of foreign substance in the throat. Hawking. Pharyngeal cough and expectoration of the abnormal secretion.

Complications.—Nasal and post-nasal catarrh. Gastritis. Tonsillitis and laryngitis.

Duration.—Without treatment and removal of cause, indefinite.

Diagnosis.—Syphilitic and phthisical manifestations in the pharynx are the most common affections that should be differentiated.

Etiology.—Successive and unresolved catarrhal attacks. The irritation of abnormal secretion running down from the naso-pharynx, and hawking to get rid of it. Gastric and œsophageal catarrh conveyed along the mucous tract. Breathing smoky and other impure atmospheres. Mouth-breathing. Drinking strong

alcoholic, or too hot and too cold drinks, Venous congestion, due to heart or other organic lesions, preventing venous return.

Treatment.—Removal of cause. Thorough cleansing. Astringent applications of such strengths as will be tolerated by the patient and not irritate, to check the secretion, followed by stimulative and astringent applications to reduce hypertrophies.

PHARYNGITIS ATROPHICA.

Synonyms.—Dry Sore Throat, Pharyngitis Sicca, Rarefying Pharyngeal Catarrh.

Lesions.—Atrophy of more or less of the elements composing the mucous membrane of the whole pharynx, and especially of the glands of the lower pharynx. There may be increase of the fibrous elements. The mucous membrane sometimes becomes so thin that the underlying muscles can be seen shining through it. There is deficiency of secretion.

Symptoms.—Local dryness, burning, and prickling. Adherent, desiccated shreds of secretion may occasionally be seen. Swallowing is somewhat difficult, owing to the dry state of the mucous membrane.

Complications.—Catarrhal affections of the neighboring air-passages will usually accompany this condition.

Prognosis.—The course is essentially chronic, but some relief can be assured in all cases ; and where the disease is recent and the lesion not too extensive, cure can be promised.

Etiology.—It is a sequel of chronic catarrh, but sometimes it commences as an atrophic process. Poorly-nourished general conditions, and the inhalation of deleterious atmospheres, such as are found in tobacco factories, etc., seem to have a controlling action in its production.

Treatment.—Cleansing and emollient applications in incurable cases ; stimulative and alterative in others. Solutions of carbolic acid afford much relief, and weak solutions of nitrate of silver will often bring about an entirely different condition of the parts.

ELONGATED UVULA.

Synonyms.—Dropping of the Palate, Relaxed Throat.

Lesions.—There may be simply a relaxation of the tissues of the soft palate and uvula, so

that the latter is dragged out thin by its own weight, and its end rests on the base of the tongue ; or there may be œdematous swelling of the uvula and a lengthening out of the organ ; or there may be hypertrophy of all the mucous and sub-mucous elements, and the uvula be greatly enlarged, as well as lengthened.

Symptoms.—An irritable cough due to the tickling of the epiglottis and back of the pharynx. The sense of a foreign body in the throat. Suffocative attacks, if the elongation is great enough to allow the uvula to get sucked into the glottis, and thus produce spasm. There may be gagging and nausea.

Complications.—Pharyngitis, laryngitis, and erosions of the upper edge of the epiglottis.

Duration.—The course of the affection is essentially chronic. There is a paralysis of the soft palate, due to acute inflammation, that endures only a few days.

Prognosis.—Good under proper treatment.

Etiology.—It is generally the result of repeated attacks of catarrh of the fauces. It may be the result of general lack of tone of all the tissues of the body.

Treatment.—If not very much elongated, astringent and stimulative applications will generally restore the parts to a healthy condition; but in cases of great elongation, hypertrophy, œdema, or obstinate resistance to other treatment, amputation of the redundant tissue is called for. The operation is only slightly painful, but the patient is apt to have a sore throat for a few days. Too much tissue should not be removed, as considerable shrinkage follows the operation.

POST-NASAL CATARRH.

Synonyms.—Retro-Nasal Catarrh, Follicular Pharyngitis.

Lesions.—The seat of this affection is the vault of the pharynx above the line of the soft palate when in contraction, a part of the air-tract that pathology would more properly join to the nasal fossæ than to the lower pharynx. In the rare cases of primary acute catarrh of the pharyngeal vault there are merely hyperæmia, swelling, and abundant production of thick tenacious muco-purulent secretion of a greenish grape-pulp appearance. In the common sub-acute and chronic forms there is more or less

change in the mucous-tissue elements. Glandular hypertrophy is the rule, the pharyngeal tonsil tending to enlargement, and forming prominent ridges of hypertrophied tissue. The lips of the Eustachian orifices may also be enlarged, so much so as to close more or less the mouth of those canals. In other cases the mucous membrane becomes sodden in appearance, and in old cases general atrophy may occur. The secretion varies with the prevailing condition. It may be slight or abundant, very fluid, or so viscid as to dry into hard scabs that require considerable force to dislodge.

Symptoms.—This, the most common diseased condition of the upper air-tract that comes under the surgeon's treatment, may be present without attracting the attention of the individual. The symptoms are in relation to the amount of the secretion. As it collects, the patient makes the peculiar forced inspiration and palate muscular movement that draws the plug of secretion into the mouth, where it is usually hawked out. When the secretion is abundant it drops down into the throat causing much annoyance. There may be peculiar headache, and sense of a foreign

body present. If much of the morbid secretion be swallowed, gastric disturbance will follow. There may be change of voice resonance, and some mouth-breathing, through partial occlusion of the air-tract at this point. Impairment of hearing may be present, owing to this condition.

Complications.—Nasal catarrh most always, and pharyngeal and laryngeal catarrh very frequently, accompany this trouble ; less frequently, catarrh of the Eustachian tubes.

Duration.—Usually indefinite unless treated.

Prognosis.—A cure can be promised in a few days if the attack is acute, but only after a long and tedious treatment in the more chronic cases. The difficulty lies in the removal of causes, sometimes the etiology being obscure and even congenital.

Etiology.—Most cases are the result of extension of affections of the nasal air-tract, but “taking cold,” various direct irritants, and venous stasis due to various heart, liver, and other organic affections, are among the causes that produce this very common disease.

Treatment.—In the more recent cases thor-

ough and frequent cleansing with alkaline solutions, followed by mild astringent and sedative applications, will suffice ; but in old cases, besides the cleansing, that sometimes is difficult owing to inspissated secretion, there must be persistent and long-continued applications of the stronger stimulative and astringent medicaments. In cases of great hypertrophy, the redundant tissue has to be destroyed by the galvano-cautery, biting forceps, or otherwise. Some cases, after a course of daily applications for several weeks, require an occasional application during years to keep the trouble under control. If neglected, aggravation of the disease will follow.

ACUTE FOLLICULAR PHARYNGITIS.

Synonym.—Acute Granular Sore Throat.

Lesions.—This is hardly a common affection, but is introduced for convenience in differentiating the disease from chronic follicular pharyngitis. It is usually confined to groups of follicles in the lower pharynx and around the base of the tongue. It is a fibrous inflammatory exudation into the follicular sacs, distending them, nodulating the mucous membrane, and the

yellowish fibrine showing at the mouths of the follicles. The mucous secretion is scanty.

Symptoms.—Being a severe inflammation, there is marked constitutional disturbance, with a temperature of 102° to 103° , preceded by a chill. There is great local dryness, harshness, and pain.

Diagnosis.—This affection has been taken for tuberculosis of the pharynx—a very rare condition.

Etiology.—The reason for this peculiar action in certain groups of follicles is not known. It is probably connected with some disorder of the general system.

Treatment.—The patient will need vigorous support and antiphlogistic treatment. Locally cold, sedative, and mild astringent applications may be made. Some practitioners use strong solutions of nitrate of silver.

CHRONIC FOLLICULAR PHARYNGITIS.

Synonyms.—Clergymen's Sore Throat, Granular Pharyngitis.

Lesions.—Hypertrophied follicles of various degrees of enlargement, some containing degenerated secretion, variously distributed over

the lower pharynx, and occasionally faucial pillars, upper pharynx, and larynx, is the distinctive lesion of this morbid condition. The mucous membrane is abnormally red, and raised here and there in small nodules by the hypertrophied follicles. All the tissue elements of the follicles undergo hypertrophy, and especially the fibrous tissue. Increased viscid secretion will be noted, and especially so if the pharyngeal vault is implicated.

Symptoms.—Raw, harsh, painful sensations. Hawking and scraping, with expectoration of the secretion. Sensitiveness to atmospheric changes and irritants. Neuralgic pains in the throat. As the larynx is usually implicated, the voice is impaired and altered.

Complications.—Naso-pharyngeal catarrh, and laryngeal inflammation of various grades, are almost always present with this affection.

Duration.—The course is eminently chronic.

Prognosis.—Amelioration is possible even in the worst cases. Recent cases can be fully cured to all intents and purposes. Very old cases are rebellious, and the restoration of a perfect throat hardly to be expected.

Etiology.—Neglected simple catarrhal attacks of the pharynx and nose, the vitiated secretions of which act as an irritant on the follicles. The extreme use of the voice, irritating drinks or food, gastric disturbances, and atmospheric impurities, all extend their influence in bringing about this condition.

Treatment.—Thorough frequent cleansing with forcible sprays, with applications of astringents and stimulants will serve for recent cases, but old cases require destruction of the enlarged follicles. Escharotics may be employed, but the actual cautery is preferable.

ACUTE FOLLICULAR TONSILLITIS.

Synonym.—Acute Amygdalitis.

Lesions.—This affection has its centre in the tonsils, but also implicates the contiguous mucous membrane. The more superficial parts of the mucous membrane are affected. It will be borne in mind that the mucous membrane of the tonsil is arranged in deep folds, forming the tonsillar crypts or follicles, so that even a moderate amount of engorgement and infiltration of the mucous membrane enlarges the tonsil so that it

stands out from its bed, and this is a feature of the disease. One, or even a part of a tonsil, may be alone affected. The tonsils are bright red, and excrete a large amount of viscid and often fetid mucus. The follicles are distended with a soft, white, cheesy-looking secretion that shows at the follicular orifices; and becoming diffused in the mucus, produces white spots of more or less extent on the tonsils. The nerve filaments are severely pressed upon by the infiltration.

Symptoms.—Malaise, general depression, and chilliness are followed by a fever that may run up to 104.° Then come local pain, difficult swallowing due to the swelling, and expectoration of the morbid secretion. The breath is disagreeable, and the tongue coated.

Duration.—The disease usually runs its course in four or five days.

Sequelæ.—The usual result is complete convalescence, except after repeated attacks, when hypertrophied tonsils are memoirs of the diseased process.

Diagnosis.—This affection is often confounded with diphtheria, and the many-vaunted cures

of that dread disease are the outcome of treating acute follicular tonsillitis. In case of doubt a bent probe may be easily passed into the enlarged follicles, and the secretion wipes off with facility.

Etiology.—Predisposition is observed between the ages of ten and thirty years, in strumous individuals, and after previous attacks. The principal inciting cause is “taking cold.”

Treatment.—Guaiac as an abortant has considerable reputation. Rest in an equable and warm atmosphere, general arterial sedation, free intestinal action, and mild, unirritating, sloppy diet, are proper indications. In local treatment ice may be sucked, or frequent cold gargles used, to which mild astringents, sedatives, and disinfectants may be added. An opiate at night to secure rest may be needed.

ACUTE SUPPURATIVE TONSILLITIS.

Synonyms.—Quinsy, Sore Throat, Phlegmonous Tonsillitis.

Lesions.—The force of this inflammation is in the deep-seated fibrous tissues at the base of the tonsils, and which process results in the

formation of one or more abscesses. The swelling of the glands and sub-mucous tissue is very marked. The whole fauces may be so filled up that there is often scanty room for the air to pass into the larynx. The lesion may be on one or both sides. Usually the morbid process on one side precedes that on the other. The mucous membrane is lividly red, tense, and shining, and there is a great secretion of glairy mucus. The contiguous tissues are often seriously implicated. The jaws may be almost completely immovable, and neighboring glands may be much swollen.

Symptoms.—The constitutional disturbance is very marked. Decided chill, followed by high fever, marks the invasion. Soon there is intense pain locally, with not only painful deglutition, but almost inability to take food in the mouth, or to swallow at all. The breath becomes fetid, and the patient expectorates, or rather drools, large quantities of viscid mucus. The voice is guttural. The symptoms increase in severity until the abscess becomes ripe, when spontaneous evacuation or the surgeon's knife gives almost instantaneous relief, and speedy

recovery follows unless new abscesses form which is frequently the case.

Duration.—One to two weeks. Sometimes the general prostration is so great that return to health is still further delayed.

Prognosis.—In very rare instances death has occurred from suffocation following the rupture of the abscess, and severe results have been caused by the burrowing of the pus in the neck, but usually recovery is complete and rapid.

Sequelæ.—Repeated attacks bring about hypertrophy of the tonsils, and may interfere with the general health.

Etiology.—Predisposition, which is very noticeable in the strumous, and severe exposures to cold, are the principal causes brought forward to explain the causation of this affection.

Treatment.—Besides attention being given to the constitutional symptoms, a mild fluid diet is imperative. In some cases the attack may be aborted. Guaiac may be given, and ice-bags put to the outside of the throat, with ice or ice-water bathing in the mouth. But when these measures are ineffectual, the process should be hurried up by the application of hot poultices

externally, and bathing the parts internally with as hot water as can be borne in the mouth, to which may be added a small amount of borax, alum, and carbolic acid, for cleansing and disinfectant purposes. In most cases free scarification will give great relief, and when fluctuation is felt, free puncture will shorten the sufferings of the patient.

CHRONIC HYPERTROPHIC TONSILLITIS.

Synonyms.—Enlarged Tonsils, Chronic Tonsillitis.

Lesions.—In this condition all the tissue elements of the tonsils undergo hyperplastic proliferation, but with chronicity the fibrous element becomes more and more a prominent feature, making the hypertrophied glands very hard. The enlargement may be unilateral or bilateral. The whole gland may be symmetrically enlarged, or separate lobes may be mostly affected. All degrees of enlargement are to be observed. The Eustachian orifices may be blockaded. There may be great obstruction to deglutition, and the proper entrance of air to the lungs may be prevented, producing chicken breast and

other deformities of the chest. Mouth breathing is a very common concomitant of enlarged tonsils, owing to partial occlusion of the post-nasal space. There is apt to be a chronic morbid discharge of secretion from the tonsillar follicles.

Symptoms.—Sense of a foreign body in the throat. Changed voice resonance. Mouth-breathing, especially at night, with snoring and noisy respiration during sleep. General deterioration of health.

Duration.—This condition persists for years, especially if there be much fibrous tissue formed. However, there is a general tendency to slow, gradual atrophy of the hypertrophied tissue. This is especially to be noticed at puberty and at middle age.

Complications.—Catarrh of the upper air-tract, and bronchitis is apt to be present.

Prognosis.—Under correct treatment, this affection can be quickly relieved of its troublesome features.

Sequelæ.—A long continuance of the condition is apt to be provocative, in after-life, of phthisis and other troubles of mal-nutrition.

Etiology.—Repeated acute attacks of tonsillitis, or chronic catarrh of the organs and contiguous tissues. Strumous and delicate-tissued individuals are most prone to acquire this disorder. It occurs at all ages, but most frequently between the ages of ten and thirty years.

Treatment.—If the enlargement is soft in its nature, astringent and stimulative applications will reduce the hypertrophy. Where the enlargement is not excessive and not acting as a centre of irritation, or otherwise interfering seriously with the general health, an expectant treatment may be carried out, giving greater care to the nutrition of the patient, and exercising greater protective care in preventing him from taking cold. Properly regulated cold sponge baths, wearing sufficient and properly distributed clothing, and avoiding undue exposures, must be enjoined upon the patient. Out-of-door exercise and pure air in-doors, and that necessitates the adoption of the open grate fire, are absolutely necessary in a great many cases. Perhaps in the great majority of cases, removal of the gland is either a necessity, or will be a great improvement, and will materially help to

prevent recurrent acute attacks. In some cases the improvement in the general nutrition of the patient, after amputation of the tonsils, is wonderful.

FOREIGN BODIES IN THE PHARYNX.

The impaction of foreign bodies in the pharynx is of frequent occurrence. These bodies are most frequently fish and other bones, pins, needles, morsels of food, coins, buttons, etc. The site of the impaction is usually in the lower part of the pharynx, at the side of the arytenoid eminences at the base of the tongue, or in the faucial folds. A large morsel of food may block the whole passage, preventing air from passing into the larynx.

Symptoms.—More or less local pain or discomfort, difficult or impossible deglutition, gagging, spasm of the glottis and suffocation, will be noticed, according to the nature of the accident. In case of long retention of the object there may be irritation and inflammation, with catarrhal symptoms, or an abscess may even form that may point externally.

Diagnosis.—The body may be in direct

view, or may be seen by merely depressing the tongue, but more often the throat-mirror will have to be used to see the body. In other cases the finger may be employed to feel the intruder, and sometimes the sound or probe will come into play. The sensation of something in the throat is often present after the foreign body has been removed, or as the result of traumatic or inflammatory lesions, and also in hysteria. Thorough examination will differentiate these sources of error.

Etiology.—Sometimes paralytic lesions and malformations may predispose to this accident.

Treatment.—Urgent cases require prompt introduction of the finger to try to dislodge the object, and even sudden tracheotomy may be required to prevent suffocation. The fauces may be tickled to produce vomiting, as such action will often bring up the foreign body. More generally various forceps are called into successful use in extracting the object. After-treatment of applications of emollients, sedatives, and perhaps astringents, may be necessary to allay irritation caused through laceration by the body and the efforts made for its removal.

COMMON LOCAL DISORDERS OF THE LARYNX.

ACUTE CATARRHAL LARYNGITIS.

Synonyms.—Under the name of Acute Catarrhal Laryngitis may be described a disease that has so many degrees of intensity that various writers have made several distinct diseases of the affection in their descriptions. An attack of low intensity may be called Laryngeal Hyperæmia; while Subacute Laryngitis, Acute Laryngitis, Croup, etc., etc., are names used to designate various grades and manifestations of the affection.

Lesions.—The force of the disease may be generalized over the whole laryngeal mucous membrane, but often individual parts only are affected, or are more affected than other parts. When there is inequality in the distribution of the inflammatory action, those parts having most motion, as the vocal cords and arytenoids, are likely to be most affected. The inflammation may be superficial, or it may include the submucous tissues, in which case there is greater tumefaction.

According to the intensity of the attack, there will be diffused or localized bright redness of the mucous membrane, showing particularly on the vocal cords, and more or less swelling from the infiltration of serum or seropus. At first there is dryness of the mucous membrane, but this is followed by the appearance of a morbid secretion, that may be scanty and viscid, or very abundant and frothy, and later may become muco-purulent. The swollen mucous membrane, especially at the posterior commissure, may prevent approximation of the cords, and the infiltration and other inflammatory effects on the laryngeal muscles may interfere with their physiological action. In rare cases there may be epithelial erosions, and rupture of slight vessels owing to violent cough.

Symptoms.—Severe cases may be ushered in by chill and febrile excitement, and these manifestations are symptomatic of the intensity of the inflammation. High temperature and rapid pulse may be expected in children, even in mild cases. Locally there is burning, itching, dryness, and laryngeal cough, soon followed, in

patients over six years of age, by expectoration of the morbid secretion. If there is much swelling in the small larynges of children there will be dyspnœa. If the upper part of the organ is affected, or if the disease is deep-seated, there will be painful deglutition.

Complications.—Pharyngitis and trachitis are common accompaniments. Spasm of the glottis and laryngeal œdema are only too often disagreeable complications.

Duration.—From two days to two weeks, perhaps averaging from seven to ten days.

Prognosis.—In mild and moderate cases the prognosis is good for complete recovery, though one attack weakens the parts and predisposes to other attacks. This is particularly the case when the affection is allowed its full natural course. A neglected or badly treated attack may run on into a chronic laryngitis. A severe attack of this affection may prove fatal through occlusive swelling of the laryngeal mucous membrane.

George Washington died of this disorder, complicated with the extensive phlebotomy practised upon him by his misguided surgeons.

Diagnosis.—The acute laryngitis of syphilis cannot be distinguished from this affection, except from the history.

Etiology.—"Taking cold" is the most prominent cause. This, of course, means over-reaction after periods of chill or depression, affecting a least resisting part, or of reflex action due to the effect of excessive cold or hot temperatures on the peripheral surfaces of the body. The next most frequent cause is too long use of the voice without rest, or overstraining, as in loud calling, singing in too high pitch, etc. Irritating vapors, dust, etc., especially when breathed through the open mouth, are provocative of the trouble. General delicacy of the tissues and previous attacks predispose.

Treatment.—In mild attacks, one or more simple sedative and mildly astringent local applications will effect a cure. Other cases require rest for the voice, and others again should be confined to the house, being kept quiet in a mild uniform temperature. The more serious cases require active antiphlogistic treatment. Confinement in bed. Derivation by means of

cathartics, heat to the extremities, sedation of the general circulation, and the ice-bag or ice-cloths over the larynx. Ice may be held in the mouth, and cold astringent and sedative sprays applied locally. In desperate cases an artificial opening into the windpipe is indicated.

SPASM OF THE GLOTTIS.

Synonyms. — Laryngismus Stridulus, Spasmodic Croup, Pseudo-Croup.

Definition.—A functional disorder of the larynx, mostly occurring in children, characterized by remittent spasm of the laryngeal muscles, causing more or less laryngeal stenosis. Laryngeal catarrh being usually present, the swollen mucous membrane and abundant secretion are prominent factors in increasing the stenosis.

Symptoms.—This condition usually occurs during the course of a laryngeal catarrh, but it may occur with little or no symptoms of concurrent laryngeal trouble. The attack is usually sudden and takes place during the night or early morning. There is a sonorous, peculiar laryngeal “croupy” cough, followed by more or less marked dyspnœa, stridulous and difficult inspi-

ration, suffused face, and extraordinary efforts of the respiratory apparatus to give an increased supply of air to the lungs. The child is frightened and the parents more so, and altogether the attack seems very alarming. However, there are remissions of the spasm, with more quiet breathing, and after a time the attacks gradually cease, and the child falls asleep worn out with its struggle.

Prognosis.—Uncomplicated spasmodic croup is not serious. The affection brings its own remedy by the accumulation of carbon dioxide in the blood, producing relaxation of the convulsed muscles.

Diagnosis.—In œdema of the larynx the dyspnœa is not remittent. A foreign body in the larynx may simulate this condition.

Etiology.—Some hyperæsthetic condition of the nerve-centres must be at work producing this disorder. Direct influence can often be traced to some reflex source of irritation, such as indigestion, intestinal worms, costiveness, etc.

Treatment.—It is well to see that the alimentary tract is free from any irritant. Attention to the stomach by giving emetics, and by ad-

ministering intestinal injections, will have a derivative effect. Moist hot cloths to the throat, and steam inhalations, to which sedatives may be added, will break the spasms. Nauseants, such as ipecacuanha, are useful. Of course concomitant catarrh needs its appropriate treatment. In rare cases laryngotomy may be necessary.

ŒDEMA OF THE LARYNX.

Synonym.—Œdema Glottidis.

Lesions.—This condition is a marked serous infiltration of the connective tissue of the laryngeal mucous membrane. Sometimes the term is used to designate general inflammatory swelling of the larynx, but ordinarily the term is meant to express the above condition. The mucous tissue being very mobile, and especially so in the upper part of the larynx, gives abundant opportunity for this morbid action. The tumefaction may be generalized over the whole larynx, but the vocal cords, being more dense in construction and connection, are the least affected, so œdema of the glottis is rather a misnomer. The swelling is most marked in the loose folds between the epiglottis and arytenoid

cartilage. There the swelling may be so great, that during inspiration the folds may be drawn in and close the laryngeal orifice like a valve. The swelling looks tense and more or less red, but has a semi-translucent appearance.

Symptoms.—Urgent, and usually very rapidly increasing, dyspnœa is the marked symptom that overshadows all other signs. There is a terrible struggle for breath, and unless relief comes with promptness, asphyxia speedily follows.

Prognosis.—This is a serious condition, and the prognosis is usually bad.

Diagnosis.—A glance with the laryngeal mirror will at once disclose this condition, and differentiate it from occlusion by membranous and other exudation, or from foreign body. The trained tip of the index finger may disclose the condition. Slow dropsical œdema of the larynx, as the result of heart, kidney, or other lesions, does not present such symptoms of urgency, the patient gradually becoming used to the deprivation of his usual supply of oxygen.

Etiology.—This condition is the result of

very severe inflammatory action on the deeper mucous tissues. Traumatism is apt to produce it. It may occur during the course of a severe laryngitis.

Treatment.—Free scarification, repeated as often as need be, is the resource when the condition is established. This may be done with a laryngeal knife or a gum lancet, or a guarded curve-pointed bistoury may be bound to the index finger and carried to the œdematous swelling. Tracheotomy may be necessary.

MEMBRANOUS LARYNGITIS.

Synonyms.—Membranous Croup, Croupous Laryngitis, Exudative Laryngitis, The Laryngeal Diphtheria of some writers.

General Considerations.—Some authorities claim that membranous croup and diphtheria are one and the same disease, but it would seem that the weight of evidence is to the effect that, although there may be great similarity in the local lesion, there is a diversity of cause. There can be little doubt but that an exudative fibrinous inflammation may arise without the presence of diphtheritic poison, as, *e. g.*, from

burns, scalds, and other traumatisms, and no sufficient reason has been advanced to show why such inflammation should not arise idiosyncratically. Such cases are *rare*, and in the past many cases of undoubted diphtheria have been diagnosticated as croup.

Lesion.—The distinctive lesion of this affection is the exudation of an adventitious membrane of fibrinous matter upon the laryngeal mucous membrane, and often extending down the trachea and bronchi.

Symptoms.—Commencing as an acute laryngitis, the general symptoms are sthenic, with a full strong pulse and increased respiration. The advent of the exudation, narrowing the laryngeal orifice, is marked by more or less urgent dyspnoea, and then, if relief be not afforded, there is gradual decline of the vital powers, owing to progressive asphyxia. The affection is usually several days in attaining its maximum stage of intensity. Spasm of the glottis is a common accompaniment, increasing the dyspnoea.

Prognosis.—The chances of recovery are generally against the patient, but under ener-

getic treatment there should be a moderate chance for recovery.

Diagnosis.—Diphtheria may be eliminated when great depression of the vital forces is absent from the start. However, many cases can scarcely be differentiated. (See diphtheria.)

Etiology.—No absolute cause for this particular pathological action is known, but severity of direct or reflex irritation may be accepted as one of the characteristics of the cause. Burns, scalds, etc., will bring it about.

Treatment.—The most successful treatment is in preventing the fibrinous exudation by cold applications locally, and by instituting brisk derivative measures, such as heat and irritation to the extremities, catharsis, and by arterial sedation. After the exudation is formed, the casting off of the membrane can be hastened by favoring suppuration in the parts with the aid of heat and moisture, applied in the hot pack to the neck; and by the inhalation of steam, to which sedatives may be added; or by slaking lime in water and inhaling the fumes. Early tracheotomy is usually indicated in bad cases, but is only occasionally successful, owing to the

extension of the fibrinous formation down the trachea.

CHRONIC LARYNGITIS.

Definition and Synonyms.—Under the above head may be described a chronic affection of the larynx, presenting different macroscopic appearances, and with equally different microscopic pathological variations. These various states have given rise to such appellations as Chronic Catarrhal Laryngitis, Chronic Glandular or Follicular Laryngitis, Hypertrophic Laryngitis, Atrophic Laryngitis, etc., etc.

Lesions.—Usually there is more or less diffused hyperæmia, but some parts may be more affected than others, such as on the vocal cords and at the posterior commissure. Occasionally the mucous membrane may be more pallid than normal, and in a sodden, relaxed condition. There may be more or less swelling, and this is usually unequally distributed. There may be general hypertrophy of the tissue elements, or individual elements may preponderate in the hypertrophy. The glands alone may be most prominently enlarged. The vocal cords are apt to become rough, owing to unequal epithelial

development. Atrophy may be present. Occasional erosion may occur along the free edge of the cords, and especially on the posterior third, where they approximate with most friction. There may be an unnatural deficiency of secretion, or there may be an excessive secretion, usually of a thick, sticky consistency.

Symptoms.—The prominent symptoms of chronic laryngitis are such as pertain to interference with the normal voice. Owing to the mechanical interference of inflammatory infiltration, or to lack of innervation due to interference with the nutrition of the parts, the function of the vocal organ will be variously affected. There may be more or less hoarseness, huskiness, or even loss of voice. Co-ordination is apt to be so interfered with that the ability to control fine modulations of the voice is lost. Then there may be disagreeable symptoms, such as dryness, burning, tickling, etc. There is more or less cough and expectoration of the laryngeal secretion. The course of the trouble is not constant, undergoing exacerbations and remissions under the influence of adverse or favorable surrounding conditions, and without

appropriate treatment may persist indefinitely.

Prognosis.—Chronic laryngitis in itself is not a dangerous disease, but it may give rise to much discomfort. The possibility of a cure depends upon the chronicity of the case, and the perseverance of the patient in submitting to treatment. The more recent cases can be brought into a normal condition with comparative ease, and all cases can be benefited. Very chronic cases can hardly be promised more than improvement.

Etiology.—Among the factors bringing about and keeping up this condition are the following: continued abuse of the voice from over-use or strain; the irritation of nasal and pharyngeal catarrhal secretions dropping into the larynx; successive attacks, and neglected attacks, of acute laryngeal catarrh; the irritation of an elongated uvula; coughing up of bronchial and pulmonary sputum; inhalation of dusts of various kinds, especially through the open mouth; vascular engorgement due to exposure to cold and dampness, or due to heart and other lesions.

Treatment.—Besides removal of the causes

so far as may be, which may involve change of occupation, dwelling, locality, dress, rest of voice, regulation of the general nutrition, etc., the treatment consists of local applications to the larynx of astringents, sedatives, and stimulants, as the individual case may require. The spray is the best method in which to make the application. Sometimes steam inhalations may be advantageously combined. *Frequent* mild applications usually have a better effect than stronger ones less frequently applied. The seance may be daily until notable improvement is perceptible, and then the intervals between applications may gradually be lengthened. As every case differs, the matter of the adaptability of the medicament suited to the case in hand can only be learned by the experience gained through practice and trial. Only general principles can be advantageously set down in a book of instructions.

BENIGN MORBID GROWTHS IN THE LARYNX.

Intralaryngeal growths were thought rare in the prelaryngoscopic days, but since the laryngeal mirror has enabled the larynx to be

easily examined, they are found to be of more frequent occurrence than was formerly thought.

WARTY GROWTHS (*Papillomata*) are the most frequently seen. Though attached usually to the vocal cords, they may occur anywhere in the larynx. They are most often sessile, and multiple, and of various shades of dingy red. When removed they are apt to recur, and may degenerate into malignant growths.

FIBROUS GROWTHS (*Fibromata*) are the next in frequency that are met, and are composed of more or less firmly intermatted bundles of fibrous tissue. They are usually pedunculated, and do not recur when removed.

LARYNGEAL CYSTS (*Cystomata*) are rarer growths. They are probably the results of occlusion of some follicular mouth. A thorough incision destroys them.

MUCOUS TUMORS (*Myxomata*), FATTY TUMORS (*Lipomata*), and VASCULAR TUMORS (*Angiomata*) may occur in the larynx, but are exceedingly rare.

Symptoms.—These growths may give rise to no symptoms. They may interfere mechanically with the physiological movements of the

larynx, and so impair the voice, or they may act as irritants, causing more or less inflammatory symptoms.

Prognosis.—Most of these growths can be successfully removed, leaving the voice intact. However, in some cases there is a tendency to final malignancy, and of course ultimate fatal results.

Diagnosis.—The expert usually learns to differentiate the various growths by laryngoscopic examination, but some cases require the aid of the microscope to establish a differential diagnosis.

Treatment.—Growths on and above the vocal cords can usually be grasped and removed by way of the natural passages with the aid of the laryngeal forceps. Subglottic growths are very difficult to reach ; and with some, difficult supraglottic growths, have to be exterminated after performing thyrotomy. Cysts are to be incised, and if possible the sac thoroughly cauterized.

CANCER OF THE LARYNX.

Varieties and Lesions.—While malignant

growths of the air-tract above the base of the tongue are rare, such growths are comparatively frequent in the larynx in persons over forty years of age. The great majority are epitheliomata. Scirrhus and encephaloid growths occur less frequently. These growths mostly start from the ventricular folds, but may start from and involve any part of the larynx. Not infrequently they have their centre in the lower pharynx, posterior to the larynx. The epithelial cancers are ragged and very uneven. The others are more diffused and involve broader surfaces. They may appear grayish-white, or very red, and blood-vessels are often seen leading to the growths. Ulcerations soon appear, and the ulcerated spots are seen to be covered with dirty muco-pus, sometimes streaked with blood, due to rupture of ulcerated vessels. The ulcerative ravages may be extensive before death ensues. Contiguous catarrh is usually present. Neighboring glands in the neck ultimately become infiltrated.

Symptoms.—At first nothing marked attracts the attention of the patient. Pain, shortness of breath, and difficult and painful swallowing

are more or less present, according to the stage and location of the growth. During ulceration the pain is generally severe and lancinating. Impairment of the voice, expectoration, hemorrhage, and offensive breath will be noticed.

Prognosis.—The end of the disease is usually reached after a duration of two years. It may come in a few months, and on the other hand, operation may delay for years the certainly fatal result.

Diagnosis.—The microscope differentiates benign growths, and anti-syphilitic treatment should always be tried where there is any possible suspicion of the nature of the affection being syphilis.

Treatment.—Some growths at the beginning may be removed by the natural passages, but usually thyrotomy is necessary to allow of the thorough removal of the growth. Tracheotomy is an early indication. Extirpation of the larynx for cancer has apparently resulted in two or three cures, and a great many deaths, either on the table, or very soon after the operation. It would seem a question that should be left to the patient, as to the performance of this operation.

It is probable that the average extension of life is longer by simply allowing the patient to wear the tracheal canula.

LARYNGEAL PARALYSIS.

General Considerations.—The question as to the function of some laryngeal muscles is still *sub judice*, and hence there is no scientific generally accepted full classification as to laryngeal paralysis. However, this is of less practical importance than of scientific interest.

The subject may, perhaps, be presented in simplest form by considering it according to the action of the various muscles. There may be then :—

First.—*Paralysis of the Adductors of the vocal cords* (Lateral Crico-Arytenoids, and the Arytenoid muscles).

Second.—*Paralysis of the Abductors of the vocal cords* (Posterior Crico-Arytenoid muscles).

Third.—*Paralysis of the Tensors of the vocal cords* (Crico-Thyroid muscles).

Fourth.—*Paralysis of the Tensor regulator, or antagonistic muscles* (Thyro-Arytenoid muscles).

Fifth.—*Paralysis of the Depressors of the epiglottis* (Thyro-Epiglottic and Aryteno-Epiglottic muscles).

These various forms of paralysis may be unilateral, or bilateral. Single muscles, or groups of muscles, may be implicated.

Symptoms.—Weakness, difficulty of modulation, hoarseness, huskiness, and partial or complete loss of voice may be observed, according to the muscles implicated, and the completeness of the paralysis. In paralysis of abduction there is more or less stridulous inspiration, with dyspnoea. If the epiglottic depressors are implicated, food is apt to pass into the larynx. Spasm of the glottis may accompany some forms of laryngeal paralysis, producing a grave and may be fatal complication.

Prognosis.—The possibility of cure depends upon the nature of the lesion producing the paralysis. Adductor paralysis is the variety most amenable to treatment. In abductor paralysis the prognosis is unfavorable. Hysterical cases, and those caused by recent inflammation, are hopeful ones to treat. The nearer the causative lesions are to the nerve-centres, other

things being equal, the less favorable will be the result.

Diagnosis.—The laryngeal mirror is, of course, of the first importance in discovering the functional disability. In it will be observed whether there is unilateral or bilateral loss of motion, and whether this is of adduction or abduction. The state of tension will be noted, as well as the regularity of the outlines of the approximating surfaces of the vocal cords. Entrance of food, etc., into the larynx indicates paralysis of the closing muscles of the upper part of the larynx. A very complete elaboration of the *history* of the patient, as well as thorough physical examination for evidences of tumor, syphilis, etc., is requisite for a correct diagnosis. In a work of such an elementary form as the present, a minute discussion on the differentiation of the various forms of laryngeal paralysis is out of place, a long course of preliminary practical observation of the larynx, in health and in disease, being a necessity for its full comprehension.

Etiology.—The cause may be due to pressure, or inflammatory action in any part of the nervous tract. It may be in the nerve-centres, or

anywhere along the course of the pneumogastric, spinal accessory, superior laryngeal, or recurrent laryngeal nerves, especially where aneurism of the arch of the aorta may affect the latter. Or the cause may be in the muscular fibre itself, due to inflammatory infiltration, atrophy, or fatty degeneration. Syphilitic, cancerous, aneurismal, glandular, and goitrous tumors, together with hysteria and diphtheria, are frequent causes. Occasionally traumatisms may produce the disorder, as well as pleuritic adhesions and contractions.

Treatment.—The cause is to be removed when possible ; *e. g.*, as in the constitutional treatment of syphilis, the local treatment of goitre, etc., after which the functional disability may be corrected by means of electricity. The use of this agent often effects brilliant results, and notably so in hysterical cases, where often one application of electricity will cause a woman to speak who has been voiceless for months and years. One pole of the battery is attached to a band around the neck of the patient, and an appropriate laryngeal electrode is introduced into the larynx. A tolerably severe

shock is often necessary to gain the effect sought. In some cases a long course of treatment is necessary to effect the cure. Of course, inflammatory action, that may be the cause of the paralysis, must be combated by appropriate treatment. In abductor paralysis early tracheotomy is pressingly indicated to prevent a fatal result.

FOREIGN BODIES IN THE LARYNX.

General Considerations.—By the presence of foreign bodies in the larynx is usually meant the impaction of such bodies in that organ. Almost every one has experienced the intrusion into the larynx of small quantities of food and drink, followed by an explosive cough, expelling the intruding body. Among the innumerable articles that do find their way into the larynx are bones, lumps of food, pins, needles, buttons, artificial teeth, etc. The accident may occur during sleep. Sometimes the object being held in the mouth, drops backward out of control of the tongue ; or, as is most frequently the case, it gets into the larynx during hasty eating and trying to swallow during an inspiration.

Symptoms.—The accident is followed by immediate spasm of the laryngeal muscles, and paroxysmal cough, with more or less dyspnœa, depending upon the size of the foreign body and its position in the larynx. A large body may entirely occlude the larynx, or it may so act as to prevent closure of the glottis, while a small body may cause a fatal result from spasm. The body may remain for weeks *in situ*, giving rise to irritation and gradual inflammatory swelling, with increasing pain and dyspnœa, and so on to gradual death, unless relief be afforded.

Prognosis.—Of course death may be almost immediate, but, if the first urgent symptoms are past, there is a good prospect for removal of the body by endo-laryngeal procedures, and an entire cure. If thyrotomy is necessary there will be danger of impairment of the voice.

Diagnosis.—Hysteria, and the after-sensation of a foreign body that has been expelled, may simulate the actual presence of a foreign body.

Treatment.—Very urgent cases require the immediate introduction of the finger for the purpose of dislodging the body. Often bending

the head downward will help the intruding body to gravitate out of the larynx. Immediate quickly-performed tracheotomy may be necessary to save life. Most of the cases coming under the surgeon's care will require the use of the various forceps to grasp the body under the guidance of the laryngeal mirror. Subglottic impactions are difficult of removal by the natural passages, and thyrotomy may be necessary.

COMMON SYMPTOMATIC DISORDERS OF THE UPPER AIR-TRACT.

MANIFESTATIONS OF DIPHTHERIA IN THE UPPER AIR-TRACT.

General Considerations.—While a large body of the profession hold diphtheria to be a local disease, probably the majority of observers consider it to be a general disease, produced by a systemic poison, and exhibiting a special lesion in the throat.

Lesions.—The characteristic lesion is the formation of a fibrous membrane on a diffused inflammatory base. It is at first thin and bluish-white, and is tightly adherent to, or continuous with, the mucous membrane. It is thickly infiltrated with fungoid microscopic organisms and connective-tissue cells. Later the membrane becomes thick, dirty yellow in color, and separates from the mucous membrane by the process of suppuration. It is usually first seen on the tonsils, soft palate, and faucial pillars, and may extend over the whole faucial mucous membrane, into the larynx and nasal passages. The false

membrane may be absent, the inflammation only presenting a catarrhal type. In very severe cases gangrene may occur. The contiguous glands are usually swollen. Paralysis of some or all of the pharyngeal and laryngeal muscles is apt to follow an attack of this disease.

Symptoms.—The symptoms relative to the throat lesions are such as accompany any severe inflammatory affection of the throat. Pain and difficulty in swallowing are of course prominent. The latter trouble may result from the swelling mechanically interfering with the act, or may be due to paralysis of the muscles that perform this function. In case the larynx is implicated, dry toneless cough, hoarseness, severe dyspnœa, and even suffocation may be present. The breath is very unpleasant, owing to the putrefaction of the products of the morbid process. Marked systemic disturbances are usually the rule, but may be hardly noticeable in mild cases.

Duration.—A mild case may be limited to one week, but average attacks will extend over a month's time, and bad cases may linger for many months with final recovery.

Prognosis.—The disease is serious at all

times. Some epidemics are more virulently fatal than others. The extension of the throat lesions to the larynx and nose warrants an unfavorable prognosis.

Treatment.—The general system must have vigorous support from the start, and every effort should be made to combat the debilitating effects of the poison.

Local Treatment.—At first, application of cold is most effective. Ice may be sucked, or ice water may be held in the mouth, and ice-bags or iced cloths may be applied around the throat. The throat may be sprayed frequently with a mild solution of carbolic acid, and sedative and *mild* astringent applications will be of some service.

Later on heat and moisture may advantageously take the place of cold applications. This may be supplied in the form of steam or the vapor of slaking lime. This being breathed by the patient is soothing and cleansing, and hastens the suppurative process and the throwing off of the false membrane. Early tracheotomy will be indicated in many cases. Occasionally the production of vomiting may effect the expulsion of the false membrane.

MANIFESTATIONS OF PHTHISIS IN THE UPPER AIR-TRACT.

Lesions.—Phthisis of the larynx is common. A few cases of pharyngeal phthisis have been reported, but beyond anæmia of the nasal and pharyngeal mucous membrane, the manifestations of phthisis may not be looked for above the larynx. Pallor of the laryngeal mucous membrane is usually the earliest sign of the affection. This condition may result from other causes, but when it is seen, it should invite a thorough examination of the patient's chest. In the great majority of cases the lungs will be found to be already affected, or will shortly give signs of tuberculosis. Primary laryngeal tuberculosis may possibly occur, but the few claimed cases of its occurrence are at least open to doubt as to correctness in diagnosis. The next morbid change is thickening of the laryngeal mucous membrane, mostly seen over the arytenoid cartilages and aryteno-epiglottic folds, forming the well-known pyriform tumefactions. Then the epiglottis tumefies, presenting the turban-shaped epiglottis. The other parts are also thickened, but in less degree. This

thickening is due to infiltration of the tissues with the so-called tubercular deposit. This is mostly located between the epithelial layer and the glands. Frequently the mucous membrane is dotted with yellowish granules, possibly due to accumulation of fibrous matter in the gland-ducts. After a greater or less time ulceration occurs, usually commencing in many scattered foci, and progressing to widespread destruction of the laryngeal tissues, often including destruction of the cartilages. Some chronic catarrh is usually present. Chronic œdema and deep-seated suppuration may be present.

Symptoms.—The invasion being insidious and the course chronic, there may be no marked symptoms at first. Commencing with slight irritative *cough* and *expectoration*, the cough may become paroxysmal and prostrating. During ulceration the act of swallowing becomes difficult and terribly painful, so that secretion and ulcerative products are from choice expectorated, or allowed to drool from the mouth passively. There will early be hoarseness, and finally entire loss of voice. Shortness of breath may be due to the laryngeal tumefaction alone,

or may result from the usual pulmonary complication. Suffocation may occur from the œdema, or impaction of necrosed cartilage that has become loosened from its position. The suffering experienced in these cases is something terrible.

Duration.—Cases of laryngeal phthisis may run a course of from thirteen months to three years, but perhaps from twelve to eighteen months is the average duration of the disease.

Prognosis.—Under exceedingly favorable conditions recovery is a hypothetical possibility, but the prognosis is almost entirely bad.

Diagnosis.—This affection may be confounded with syphilis, but almost always the general condition of the patient points to the cause. In cases of doubt the history should be enquired into, and anti-syphilitic treatment fairly tried. Usually the differences are marked, but occasional cases occur where the objective symptoms are confusing.

Etiology.—The predisposing causes of phthisis are numerous. Every thing that tends to bring about a poor state of nutrition, such as anatomical malformations and deficiencies in important

organs, a poorly regulated food supply, breathing impure air, lack of proper clothing; debilitating practices or occupations, etc. Then, as immediate inciters of the pathological action, we have the effect of severe and sudden changes of temperature, inhalation of irritants, etc. The presence of the bacillus tuberculosis in the tubercular tissue is generally admitted, and inoculation with this fungus may possibly be one cause of the disease. But whatever factor may be the immediate producer of this pathological action, we may conclude that it is always with us, and that under a certain state of mal-nutrition, predisposed or acquired, this morbid process is apt to be generated. The physiological continual activity of the larynx, and its position being favorable to irritating influences, may be a cause for the appearance of the disease in the larynx.

Treatment.—The only hope for cure is to build up and support the patient in such a high physical plane that his tissues may become so healthful as to resist the further encroachment of the disease, and to hold this status during the inevitable stages of softening, ulceration, and

expectoration, or where the lesion is slightly developed, during the absorption of the products of the affection. Generally the treatment is simply alleviative. In the early stages mild astringents and sedatives may relieve disagreeable symptoms. Further along insufflations of morphine and iodoform will give much comfort. Feeding with the œsophageal tube, extraction of necrosed cartilage, and tracheotomy to relieve urgent dyspnœa, may be indicated during the course of this terrible disease.

MANIFESTATIONS OF SYPHILIS IN THE UPPER AIR-TRACT.

PRIMARY SYPHILIS.—A few cases of chancre, mostly occurring on the tonsils, are recorded, due to a disgusting practice among the very depraved.

SECONDARY SYPHILIS.—Occurring from three weeks to three years after infection.

Lesions.—There may be attacks of acute catarrh of the nose, pharynx, and larynx, usually of a mild type, and hardly distinguishable from ordinary catarrhal inflammation; though there is a tendency to distinct lines of demarcation

between the healthy and the diseased tissues, and also of symmetrical location of the pathological action on both sides of the median line. Mucous patches, probably the most common lesion of syphilis, are common in the pharynx during the secondary stage—less frequently so in the larynx. They occur most frequently on the soft palate, tonsils, and faucial pillars, and are syphilitic infiltrations, generally of an oval form, bluish-white in color, and resembling the appearance produced by a recent application of nitrate of silver. In the larynx they are roundish in form, less than a centimetre in diameter, are slightly raised from the surface, and yellowish in color. Sometimes mucous patches have a tendency to ulcerate superficially.

Symptoms.—Syphilitic catarrh of the secondary state presents no symptoms differing from idiopathic catarrh of the upper air-tract. Mucous patches are uncomfortable or painful, especially if pressed upon during the act of swallowing. There will likely be impaired voice, as the vocal cords are apt to be affected.

Prognosis.—The secondary manifestations of syphilis rarely leave any serious lesion.

Diagnosis.—In the absence of mucous patches, well-defined symmetry of lesion, or imperfect history, secondary catarrh of syphilis may pass unquestioned as non-specific.

Treatment.—Most practitioners recommend a course of mercurials for one or two years during this stage of the disease. It does not seem essential as to the manner in which the drug is introduced into the system. Of course its effect will be carefully watched and salivation avoided. Local treatment is important. Astringents and mercurial washes may be applied to inflamed surfaces. Mucous patches may be destroyed with nitrate of silver, or painted with tincture of iodine, with iodoform as a later application.

TERTIARY SYPHILIS.—Occurring from three to fifty years after infection; acquired and congenital.

Lesions.—Chronic catarrhs, due to syphilitic poison, are common. The congenital syphilitic nasal catarrh of children is known to all. The larynx, owing to its physiological activity, is apt to be subject to a very slow, deep-seated affection, marked by an irregular, unevenly-distributed thickening of the mucous membrane,

deforming the organ to a considerable extent, Mucous patches may be seen at any time during this period, but not so frequently as in the secondary stage. Superficial ulcerations occur in all parts of the upper air-tract, but most frequently about the fauces. They are apt to extend very rapidly, and are covered with muco-pus, which, when cleaned away, discovers a pallid, unhealthy, somewhat granular base. Deep-seated ulcerations, due to the formation of gummy tumors and their subsequent breaking down, are the most characteristic features of the *tertiary* lesions. They may occur anywhere in the upper air-tract, and involve any of the tissues, including cartilage and bone. They are rapidly destructive of large amounts of tissue, and produce great deformity. The bony supports of the nose may be destroyed, causing the sinking in of that organ. The cartilages of the larynx are apt to become necrosed, and this process is apt to be accompanied by inflammatory action, including suppuration. Cicatricial contraction follows these ulcerative processes, and may produce great deformity, occluding the post-nasal space, or even the larynx itself.

Symptoms.—The subjective signs are such as would be attributed to idiopathic sore throats of various grades. Tertiary syphilis in the nose is marked by the accumulation and partial desiccation of the discharges. Putrefaction occurs in the collections, with its consequent terrible odors. Pain is not a marked feature unless proceeding from friction or pressure on ulcerated surfaces, or when due to inflammatory accompaniments. In proportion as the pharynx and larynx are involved, there will be impairment of articulation and phonation, difficult and painful swallowing, and laryngeal dyspnœa. Suffocation may occur in bad cases.

Prognosis.—The ravages of tertiary syphilis may usually be quickly checked, though some cases are intractable, but if ulceration has occurred, there will certainly follow cicatricial contraction and consequent deformity; which deformity has as yet been almost entirely irremediable.

Diagnosis.—Tertiary syphilitic catarrh is often not to be differentiated from idiopathic catarrh of the upper air-tract, unless the history should direct attention to the etiology. The nasal

ulcerations of the tertiary stage may be mistaken for fetid nasal catarrh, though cleansing and probing will discover the ulcerations. In the pharynx the differentiation of tertiary syphilis and cancer may bother even the most experienced expert, and require anti-syphilitic treatment or microscopic examination to decide the diagnosis. In the larynx, syphilis, cancer, and phthisis may be confounded, but usually the history, a thorough physical examination, and the general appearance of the patient will make the diagnosis clear.

Treatment.—This stage of syphilis requires immediate constitutional saturation with iodide of potassium, sometimes conjoined with mercurials, and local applications of iodoform and mercurial washes. The effect is sometimes like magic. The iodide should be pushed quickly and only stopped when the constitutional disturbances shown by coryza, etc., are reached. Very little permanent success has attended the cutting or dilation of cicatricial contractions. In case of laryngeal stenosis, the patient will probably have to wear a tracheal tube for life.

MANIFESTATIONS OF THE ERUPTIVE AND OTHER FEVERS IN THE UPPER AIR-TRACT.

MEASLES.—One of the first prominent signs of measles is an acute catarrhal attack. Usually starting in the nose, and accompanied with catarrh of the lachrymal ducts, conjunctivæ, and Eustachian tubes, it may spread through the pharynx, larynx, and bronchial tubes. The eruption may sometimes be seen early in the throat as minute red dots. Caused by the poison of the disease, it presents no marked features differing from ordinary catarrhs, except a tendency to linger in the larynx, and in aggravated cases, to form a fibrous exudative membrane.

SCARLET FEVER usually limits its action to the fauces and lower pharynx. The lesion may be a simple catarrh, or it may rage so furiously as to produce a fibrinous exudation, or even be gangrenous, and result in the sloughing of considerable tissue. In these latter cases the prognosis is unfavorable. The color of the fauces and hard palate is usually deep-red or purplish, and is one of the first objective symptoms of the disease.

SMALL-POX vesicles similar to those on the

skin may form on the mucous membrane of the upper air-tract. Most often they are seen in the oral cavity, especially inside of the cheeks. Inflammatory hyperæmia accompanies the eruption. If formed in the larynx, suffocation may ensue, or permanent deformity, and impairment of the voice may be the result of the lesion, especially if the vocal cords are the seat of the lesion.

TYPHOID FEVER.—During the long course of this affection the tissues generally become very delicate, and it is not surprising that even a very slight irritation should cause the erythematous action often seen in the pharynx. The physiological activity of the larynx, and the hypostatic condition of the tissues, readily account for the ulcerations that occur in that organ in this fever.

Treatment of These Disordered Conditions.—The catarrhal symptoms usually abate with the decline of the course of the fever. Alleviative measures may be taken in the shape of anodyne, demulcent, and mildly astringent local applications. In violent inflammatory states, cold applications will prove beneficial. The debilitated states require careful nutrition and tonics, as well as stimulation locally.

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